

### **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of the Claims**

1. **(Currently Amended)** An apparatus for generating a Carrier-Suppressed Return-to-Zero (CS-RZ) signal, comprising:
  - a mixer generating a modulator input by mixing data with a half clock signal;
  - a Low Pass Filter (LPF) band-limiting the modulator input data, which has been provided from the mixer, into low frequency band data;
  - a driver amplifier amplifying the modulator input data generated by the mixing of the mixer and the band-limiting of the LPF; and
  - an external modulator generating a CS-RZ signal, in which phases of adjacent pulses are inverted, by applying bias voltage to the modulator input data, which has been amplified by the driver amplifier, to be placed at a null point of a transfer function of the external modulator;

wherein the mixer adjusts logical data "0" to data 0 V and adjusts a clock signal to symmetrically swing around 0 V; and

wherein the bandwidth of the LPF is adjusted to increase dispersion tolerance of the optical signal while minimizing distortion of the optical signal.

2. **(Canceled).**

3. **(Currently Amended)** The apparatus of claim 1, wherein:

the band limiting reduces an optical spectrum bandwidth of the CS-RZ signal while

reducing noise of the signal; and

the decrease of the optical spectrum bandwidth improves dispersion characteristics of the optical signal; ~~and~~

~~the bandwidth of the LPF is adjusted to increase dispersion tolerance of the optical signal while minimizing distortion of the optical signal.~~

4. (Original) The apparatus of claim 1, wherein the driver amplifier performs amplification so that logical data “0” becomes 0 V and logical data “1” becomes  $\pm V_{\pi}$ .

5. **(Currently Amended)** The apparatus of claim 1, wherein the LPF is an electrical filter designed to reduce the spectrum of ~~the an inputted~~ optical signal and improve the dispersion characteristics of the optical signal.